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DECOMMISSIONING AND/OR RECOMMISSIONING EXISTING NUTRIENT STORAGE STRUCTURES

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Figure 1. This unused manure tank is no longer environmentally sound. The excavator is in the process of demolishing and burying the structural materials on-site.

There are many unused manure storage structures in Ontario. Some are still in good repair, even though the livestock operation may have changed or been eliminated. In other cases, the walls may be cracked or broken and may not be capable of containing liquid or solid manure. In many of these situations, human safety hazards can exist. Children and adults may be at risk of being hurt or even killed if the hazards are severe. Falling and drowning are often very real possibilities. As well, the tank may be causing an adverse environmental impact on surface or subsurface water sources. This Factsheet provides recommendations for reviewing and dealing with unused manure storage structures.

At this time, the *Nutrient Management Act*, 2002, does not regulate the decommissioning of manure storage structures in Ontario. This Factsheet can be considered a guideline or recommendation. In the future, the *Nutrient Management Act* may be amended to include requirements that will address these situations.

OMAFRA recommends the periodic inspection of a liquid nutrient storage structure to determine if it is structurally sound and if all safety components, hatches, railings, fences, etc., are present and in good repair. Figure 1, left, shows a structure in the process of being demolished.

SOLID NUTRIENT STORAGE STRUCTURES

Storage structures containing nutrient materials with a dry matter content greater than 18% do not specifically require periodic inspection. In most cases, safety hazards are not as extreme with this type of storage structure. Alternative uses or permanent decommissioning of a solid nutrient storage structure can be considered after a simple clean-up process. The storage structure must be emptied of nutrient materials, using normal handling equipment, according to a nutrient management strategy or plan.

LIQUID NUTRIENT STORAGE STRUCTURES

It is the owner's responsibility to maintain all nutrient storage facilities in a state of good repair whether they are being used or not.

There is no limitation on the duration of time that a storage structure can be temporarily taken out of operation as long as it is maintained in a state of good repair. As well, the following conditions must be met:

- The contents must be managed in a manner that protects the storage structure from frost damage and deterioration and preserves its structural integrity.
- A minimum freeboard of 300 mm (12 in.) must be maintained at all times.
- A visual inspection must be made by the owner at least once per year to look for potential structural concerns and to ensure that all safety hazards are addressed.

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- A Ministry of the Environment (MOE) agricultural environmental officer may evaluate a structure for any obvious adverse impact on surface or groundwater if a problem is suspected.

PERMANENT DECOMMISSIONING

The requirements for permanently decommissioning storage structures are identified below. An MOE agricultural environmental officer, working with an OMAFRA engineer, may direct an owner to repair or permanently decommission a structure if they determine that an adverse impact to surface or groundwater is present. After clean-up has taken place, alternative uses for the structure can be considered.

For new owners, for example, it is not always obvious that a structure even exists. It may be hidden below the soil surface. It is important to ask questions of previous owners or to look for visible cues that indicate that a storage structure exists. These hidden structures can represent a serious safety hazard.

There are no specific Ministry of the Environment (MOE) decommissioning requirements for concrete manure storages, if the concrete facility is dismantled and buried on-site. However, if the building materials from the storage facility are taken off-site, the dismantling must be handled by an approved, MOE-licensed hauler and the materials taken to an approved landfill.

DECOMMISIONING REQUIREMENTS

All storage types

- Remove remaining organic materials and apply them to the land according to an approved nutrient management strategy or plan.
- Cut off or eliminate all associated transfer piping.
- Dispose of all construction materials according to provincial law.

Steel or concrete structures

- Collapse the tank walls onto the floor if the tank is below grade. Destroy the integrity of the floor and walls so that they do not interfere with natural water flow and/or site drainage. Where applicable, recycle steel components.
- Cover the storage site with clean soil or fill material that has a similar permeability to surrounding soil. If the tank is above grade, the concrete material may be trucked elsewhere on the site for use as an inert fill.
- Mound fill above original grade to compensate for settling and top dress with 6 in. of topsoil.
- Establish vegetation.
- Do not allow water to pond above this site.

Earthen storage facilities

- Remove organic material that has penetrated into the soil immediately below and to the sides of an earthen storage facility and apply them to the land according to a nutrient management strategy or plan.
- Fill storage with clean fill in 150–300 mm (6–12 in.) layers and compact each layer.
- Mound fill above original grade to compensate for settling and top dress with 150 mm (6 in.) of topsoil.
- Establish vegetation, possibly a deep-rooted crop such as alfalfa.
- Do not allow water to pond above this site.

Alternative uses for unused manure storage structures can be considered, for example, as a foundation for a covered hay storage structure or a machinery storage structure. In cases of excessive deterioration, this is not a possibility.

The purpose of this Factsheet is to create an awareness of safety issues and possibilities regarding the re-use and decommissioning of manure storage structures.

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